UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DIVISION OF AGRICULTURAL ENGINEERING

MONTHLY NEWS LETTER

WASHINGTON, D. C., MARCH 20, 1930.

S. H. McCRORY LEFT ON MARCH 15 FOR A TRIP TO SOME OF THE SOUTHERN STATES OF ABOUT A WEEK'S DURATION GOING FIRST TO HOUMA, LA. TO INAUGURATE THE WORK OF THE PROJECT ON THE DRAINAGE OF SUGAR CANE LANDS. FROM THERE HE WENT TO TALLULAH, LA. TO CONFER WITH CHAS. A. BENNETT AND REPRESENTATIVES OF OTHER AGENCIES COOPERATING IN THE STUDIES OF COTTON GINNING METHODS AND EQUIPMENT, AND COTTON DUSTING AND SPRAYING.

THE EXPERIMENTS CARRIED ON IN LOUISIANA IN THE IRRIGATION AND DRAINAGE OF SUGAR CANE MADE IT EVIDENT THAT FURTHER STUDIES SHOULD BE MADE OF THE DRAINAGE OF LANDS ADAPTED TO THE GROWING OF SUGAR CANE. ACCORDINGLY A NEW PROJECT HAS BEEN STARTED AT HOUMA, LA. WHICH HAS THE FOLLOWING OBJECTIVES: 1. TO STUDY THE EFFECTIVENESS OF DEEP OPEN DITCHES IN THE DRAINAGE OF LANDS GROWING SUGAR CANE, AND THE PRACTICABILITY OF TILE FOR DRAINING SUCH LANDS. 2. TO DETERMINE THE MOST ADVANTAGEOUS DEPTH AND SPACING OF DRAINS FOR SUGAR CANE LANDS, AND THE EFFECT OF DRAINAGE UPON THE YIELD OF CANE AND SUGAR. 3. TO DETERMINE THE EFFECT OF DEEPER AND MORE THOROUGH SOIL DRAINAGE OF THESE LANDS AND THE AMOUNT OF WATER THAT MUST BE DISCHARGED BY THE DRAINAGE PUMPS. 4. TO DETERMINE THE PRACTICABILITY OF PUMPING FROM WELLS IN THE DRAINAGE OF SUGAR CANE LANDS.

IT IS PLANNED TO DEEPEN THE OLD DRAINAGE DITCHES ON SOME OF THE SUGAR PLANTATIONS OR CONSTRUCT NEW DITCHES AND TO KEEP RECORDS OF THE FLUCTUATIONS OF THE GROUND WATER TABLE IN ITS RELATION TO THE DEPTH AND ARRANGEMENT OF THE DRAINS. MEASUREMENTS WILL BE MADE OF THE WATER DISCHARGED FROM THE DRAINED TRACTS. DRAINAGE WELLS WILL BE INSTALLED WHERE SUCH SEEM TO BE FEASIBLE. THE GROWTH OF THE CANE WILL BE OBSERVED AND RECORDS KEPT OF THE YIELD.

BENJAMIN O. CHILDS RECENTLY APPOINTED AS ASSISTANT AGRICULTURAL ENGINEER WILL HAVE DIRECT CHARGE OF THE PROJECT.

L. A. JONES IS ON A TRIP TO RALEIGH AND GREENSBORO, N.C. TO CONFER WITH STATE AND LOCAL AUTHORITIES RELATIVE TO THE COOPERATIVE WORK COVERING THE SOIL EROSION EXPERIMENT STATION WHICH HAS BEEN RECENTLY ESTABLISHED NEAR GREENSBORO. F. O. BARTEL HAS MADE A TOPOGRAPHICAL SURVEY OF THIS FARM.

MR. BARTEL HAS SUBMITTED A PROGRESS REPORT COVERING HIS WORK ON THE SOIL EROSION EXPERIMENTAL PLOTS NEAR RALEIGH, N.C. DURING 1929.

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W. M. Hurst went to Philadelphia on March 10 to confer with manufacturers of hay drying equipment regarding plans for the investigation of the artificial drying of hay. Later he went to Toledo, Ohio for a similar purpose.

Mr. Hurst is joint author with W. D. Smith and others of the Bureau of Agricultural Economics of a report on "Drying Combine Rice on the Farm" which gives the results of a cooperative study made in the rice belt last summer.

B. S. Clayton came to Washington recently to confer with officials of the Census Bureau regarding the forthcoming drainage census to be taken in connection with the 15th Census. Mr. Clayton will have charge of the drainage census and will transfer his headquarters to Washington about April 15.

Mr. Clayton's first progress report on the "Cost of Pumping and Duty of Water for Rice on the Grand Prairie, Arkansas" covering the calendar year 1928 has been rotoprinted for limited distribution. His 1929 report has been submitted.

J. G. Sutton is continuing work of collecting data on drainage pumping plants along the Illinois and Mississippi Rivers. However, records have been discontinued at a number of the plants. The chief objective during the present year will be to obtain additional data on the operation of screw pumps and centrifugal pumps having screw type propellers. Mr. Sutton is at present compiling his 1929 progress report and will begin shortly the preparation of manuscripts for two bulletins, one on the cost of drainage pumping and the other on the design and operation of drainage pumping plants.

G. A. Cumings left March 15 to undertake a series of experiments on the application of fertilizers to cotton at the Peedee Experiment Station, Florence, S.C. in cooperation with the South Carolina Experiment Station, the Bureau of Chemistry and Soils and the Soil Improvement Committee of the National Fertilizer Association. This is a continuation of the work begun last year.

The manuscript for a bulletin entitled "Farm Grain Storage in the Wheat Belt" by M. A. R. Kelley has been completed for publication by the Department.

M. C. Betts and T.A.H. Miller are preparing drawings and specifications for a greenhouse and headquarters for the Division of Sugar Plant Investigations of the Bureau of Plant Industry, to be erected at Houma, La.

Mr. Betts recently attended a meeting of a committee of the National Fire Protection Association. Among the matters discussed was the revision of certain portions of Farmer's Bulletin 1590 "Fire Protective Construction on the Farm".

The college section of the American Society of Agricultural Engineers will meet in Washington April 14, 15, and 16.

THE FOLLOWING APPOINTMENTS HAVE BEEN MADE WITHIN THE LAST MONTH:

NAME	TITLE	DATE OF APPOINTMENT	HEADQUARTERS
C. H. DAVIS	AGENT	MARCH 3	BETHANY, MO.
CARL ARCHER	AGENT	MARCH 4	TYLER, TEXAS
B. O. CHILDS	ASST. AGR. ENGR.	MARCH 10	HOUMA, LA.
O. M. PAGE	ASSOC. AGR. ENGR.	MARCH 24	ALEXANDRIA, LA.
CLAUDE K. SHEDD	AGR. ENGR.	MARCH 25	BETHANY, MO.

H. F. BLANEY AND C. A. TAYLOR PREPARED A PAPER ENTITLED "SOIL SAMPLING WITH A COMPRESSOR UNIT", FOR PUBLICATION IN SOIL SCIENCE.

D. W. BLOODGOOD, IN COMPANY WITH NEW MEXICO STATE OFFICIALS, MADE A TRIP THROUGH THE ANIMAS VALLEY FOR THE PURPOSE OF SELECTING A LOCATION FOR AN EXPERIMENTAL PUMPING PLANT IN THE SHALLOW WATER AREAS OF THE VALLEY. AFTER INSPECTING MANY LOCATIONS THEY FINALLY SELECTED ONE ABOUT 18 MILES SOUTH OF LORDSBURG. THE STATE HAS LEASED 20 ACRES OF LAND IN THAT LOCATION AND WILL HAVE A 10-INCH WELL DRILLED TO A DEPTH OF 75 FEET. A TWO-STAGE PUMP WITH A CAPACITY OF 300 TO 500 GALLONS PERMMINUTE HAS BEEN PURCHASED. CORN, ALFALFA, GRAINS, SORGHUMS, STOCK BEETS, COTTON, POTATOES, AND OTHER VEGETABLES WILL BE EXPERIMENTED WITH.

R. A. WORK, UNDER THE DIRECTION OF M. R. LEWIS, HAS COMPLETED THE FIRST PROGRESS REPORT ON "PRESENT AND PROSPECTIVE DRAINAGE REQUIREMENTS IN THE MEDFORD AREA, OREGON," COVERING THE WORK CARRIED ON COOPERATIVELY BY THIS DIVISION AND THE SOILS DEPARTMENT OF THE OREGON AGRICULTURAL EXPERIMENT STATION FROM JULY , 1929, TO JANUARY, 1930. THE AREA REFERRED TO COMPRISES ABOUT 60,000 ACRES IN THE UPPER ROGUE RIVER VALLEY, ADAPTED TO THE PRODUCTION OF ALFALFA, GRAIN, AND FRUITS. A NUMBER OF TRACTS IN CERTAIN LOCALITIES WERE IN NEED OF DRAINAGE LONG BEFORE THE ARTIFICIAL APPLICATION OF WATER TO THE LAND WAS PRACTICED. USUALLY THIS LAND WAS TILED OR DITCHED TO REMOVE EXCESS WINTER WATER, AS THERE WAS NO EXCESS SUMMER WATER EXCEPT IN CERTAIN SPRINGY PLACES. LITTLE EFFORT WAS PUT FORTH TO RECLAIM WET LANDS BY THE USE OF DEEP INTERCEPTING AND COLLECTING TILE DRAINS, THE TILE SELDOM BEING PLACED MORE THAN THREE FEET BELOW THE SURFACE. SUCH DRAINAGE AS HAS BEEN CARRIED OUT HAS BEEN DONE BY INDIVIDUALS. NO DRAINAGE DISTRICTS HAVE BEEN FORMED AND PRACTICALLY NO COOPERATIVE WORK CARRIED ON BETWEEN LAND OWNERS.

IN ORDER TO DETERMINE THE EXTENT OF THE AREA IN WHICH A HIGH WATER TABLE HAS BECOME OR IS POTENTIALLY A MENACE TO DEEP-ROOTED CROPS, AN UNDERGROUND WATER SURVEY WAS UNDERTAKEN BY MR. WORK IN JULY, 1929. TO SECURE A FAIRLY ACCURATE IDEA OF SUBSURFACE CONDITIONS, 183 WELLS WERE LOCATED THROUGH THE FLATTER PORTIONS OF THE MEDFORD AREA, BESIDES TEST PITS AND BORINGS. OBSERVATIONS OF THE WATER LEVEL IN THESE WELLS INDICATED THAT APPROXIMATELY 8,000 ACRES COVERED IN THE SURVEY WERE UNDERLAIN WITH GROUNDWATER AT DEPTHS OF 5 FEET OR LESS FROM THE SURFACE; 11,400 ACRES HAD GROUNDWATER AT 5 TO 10 FEET; AND IN THE REST OF THE AREA GROUNDWATER WAS AT DEPTHS GREATER THAN 10 FEET FROM THE SURFACE. THE WATER

TABLES APPEARED TO BE HIGHEST ON THE GENERAL AVERAGE IN AUGUST, WHEN THE IRRIGATION SEASON BEGAN TO DRAW TO AN END, THE NEXT HIGHEST IN JANUARY, 1930, DUE TO HEAVY RAINS AND SNOW. THIS SUMMER PEAK, AUGMENTED BY AN ADDITIONAL WINTER OR SPRING PEAK, ALWAYS PRESENT HERETOFORE, SEEMS TO HAVE INDUCED A PERMANENT RISE IN THE WATER-TABLE IN SOME SECTIONS.

SOME OF MR. WORK'S CONCLUSIONS THUS FAR REACHED ARE THAT MISUSE OF IRRIGATION WATER, WITH ATTENDANT WASTES SEEMS TO BE OF MUCH IMPORTANCE IN CONTRIBUTING TO THE RISE OF THE UNDERGROUND WATER-TABLE; CANAL SEEPAGE MAY BE OF CONSIDERABLE IMPORTANCE AS A CONTRIBUTING AGENT TO THE RISE IN SOME SECTIONS; THE FEASIBILITY OF PUMPING FOR DRAINAGE APPEARS DOUBTFUL; NO INDICATIONS OF THE PRESENCE OF INJURIOUS ALKALINE SALTS HAVE BEEN FOUND IN ANY PART OF THE VALLEY; AND DELAY IN INSTALLING DRAINAGE SYSTEMS WILL RESULT IN LOSS OF VALUABLE TREES AND CROPS. HIS RECOMMENDATIONS INCLUDE THE INSTALLATION OF MORE TEST WELLS IN ORDER TO MORE CLOSELY DEFINE HIGH WATER BOUNDARIES AND DETERMINE DIRECTION OF UNDERGROUND FLOW; FIELD DEMONSTRATIONS OF DRAINAGE WORK ON THOSE AREAS WHERE RESPONSE TO PROPOSED SOLUTION OF THE PROBLEM SEEMS MOST PROBABLE; STUDY OF THE MINIMUM WATER REQUIREMENT OF BEARING PEAR ORCHARDS, AND DUTY OF WATER AND METHODS OF APPLICATION FOR OTHER IMPORTANT CROPS OF THE AREA; INVESTIGATION OF THE CAUSE OF SHORT LIFE OF CONCRETE TILE IN THE "GRANITE" SOILS OF THE REGION; KEEPING ALL NATURAL DRAINAGE CHANNELS FREE OF OBSTRUCTION AND AS CLEAN AS POSSIBLE.

R. B. GRAY ARRIVED IN WASHINGTON FEBRUARY 19 FOR A THREE-DAYS' CONFERENCE ON CORN BORER MACHINERY PROBLEMS AND MATTERS RELATING TO FARM MACHINERY IN GENERAL. HE SPENT MARCH 3 AT STATE COLLEGE, PA., IN CONFERENCE WITH PROFESSORS BLASINGAME AND WORTHLEY, OF THE DEPARTMENTS OF AGRICULTURAL ENGINEERING AND ENTOMOLOGY, RESPECTIVELY, ON PLANS FOR A COOPERATIVE PLOWING PROJECT FOR CORN BORER CONTROL. ON HIS RETURN TO TOLEDO HE SPENT MARCH 4 AT THE CLEVELAND TRACTOR COMPANY'S PLANT AT CLEVELAND, OHIO, VIEWING THE PLANT AND THE LATEST TRACTORS AND DISCUSSING FARM MACHINERY PROBLEMS WITH AGRICULTURAL ENGINEERS OF THAT COMPANY.

MARCH 11 MR. GRAY CALLED ON OFFICIALS OF THE INTERNATIONAL HARVESTER COMPANY, ADVANCE-RUMELY COMPANY, AND OLIVER FARM EQUIPMENT COMPANY, ALL OF CHICAGO, AND VISITED THE RUMELY WORKS AT LAPORTE, IND., WHERE HE VIEWED THE DOALL TRACTOR. MARCH 12 HE SPENT WITH REPRESENTATIVES OF THE OLIVER FARM EQUIPMENT COMPANY AT SOUTH BEND, INDIANA. HERE THE NEW "ROW CROP" TRACTOR WAS VIEWED AS WELL AS PLOWS AND OTHER TOOLS OF THEIR LINE. COOPERATION WAS PROMISED ON DEVISING ATTACHMENTS FOR CORN BORER PLOWS TO PRODUCE BETTER COVERAGE OF CORNSTALKS.

DURING THE PAST WEEK - MARCH 10 TO 15 - THE WEATHER IN THE VICINITY OF TOLEDO HAS BEEN SO FAVORABLE AS TO PERMIT OF ACTUAL FIELD OPERATIONS WITH EXPERIMENTAL CORN BORER MACHINERY. THIS IS THE FIRST OPPORTUNITY SINCE LATE OCTOBER THAT THE WEATHER AND FIELD CONDITIONS HAVE BEEN AT ALL FAVORABLE FOR FIELD TESTS.